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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/548,088	09/06/2005	Victor Boyanov	1021-1011.3	3006
82253	7590	05/22/2009	EXAMINER	
D. Kligler I.P. Services LTD P.O. Box 25 Zippori, 17910 ISRAEL			DINH, TRINH VO	
			ART UNIT	PAPER NUMBER
			2821	
			NOTIFICATION DATE	DELIVERY MODE
			05/22/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

daniel@dkpat.co.il
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Office Action Summary	Application No. 10/548,088	Applicant(s) BOYANOV ET AL.	
	Examiner Trinh Vo Dinh	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 51-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/06/2005;02/27/2008;04/12/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a response to a restriction election filed on 03/10/2009. In view of the election, claims 1-50 are canceled and newly claims 51-57 are elected. Thus claims 51-57 are pending and considered in the office action.

Claim Objections

1. Claim 57 is objected to because of the following informalities:

In claim 57, line 7, "azimuth" should be changed to --azimuth--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 56 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 56, a recitation " the electronic components are arranged to apply phase shifting, amplification and combining to the RF signals" is unclear. It is unclear what included in the electronic components to perform the claimed function of phase shifting, amplification and combining to the RF signals.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

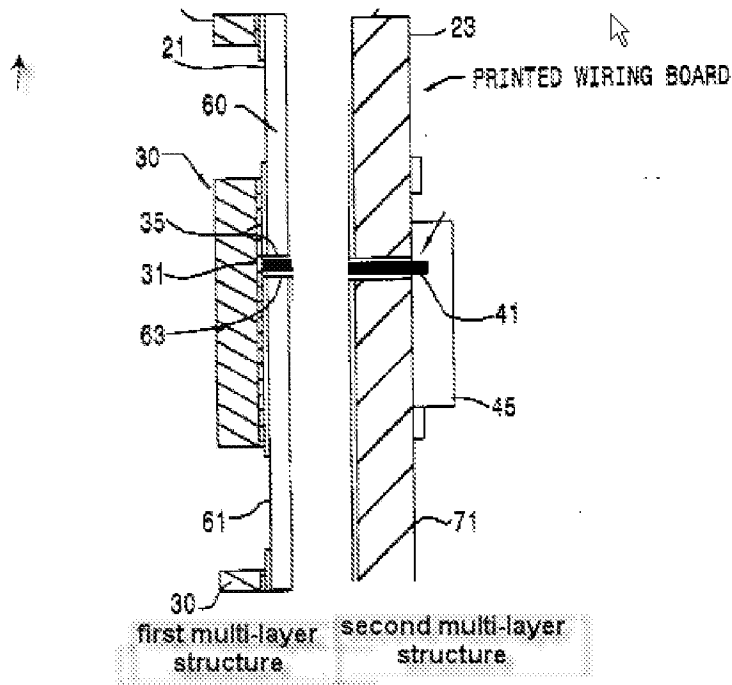
A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 51-52, 54 and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Mast et al (US 6,166,705 of record).

Respecting claim 51, Mast discloses, in Figs. 4-6, a first multi-layer structure (antenna board 30+60), having multiple antenna elements disposed thereon; at least a second multi-layer structure (70), which is mounted below the first multi-layer structure, and which comprises electronic components (40, 45, col. 3 lines 45 to col. 4 line 56) for processing Radio Frequency (RF) signals received by the antenna elements; and multiple RF transitions (31 in Fig.6, col. 4 lines 28-42), which are mounted between the first and second multi-layer structures and are operative to transfer the RF signals from the first multi-layer structure for processing by the electronic components in the second multi-layer structure.



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Respecting claims 52 and 54, Mast discloses, in Figs. 6-7 or the above drawing, the first and second multi-layer structures comprise multi-layer Printed Circuit Boards (col. 4), and the RF transitions comprise coaxial transitions (col. 5 lines 32-40).

Respecting claim 56, as the best understood, Mast discloses, in col. 4, the electronic components are arranged to apply phase shifting, amplification and combining to the RF signals.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 53 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mast in view of Part et al (US 6,191,734)/ or Karlsson et al (US 6,034,634 of record)/or Grinberg (US 5,929,819).

Claim 57 recites “electronically steer a beam pattern formed by the antenna elements in an elevation plane by applying the phase shifting, amplification and combining”. Mast discloses the same structural configuration as the claimed invention. Therefore, although not explicitly stated in Mast, the electronic components of Mast would “electronically steer a beam pattern formed by the antenna elements in an elevation plane” as claimed.

Mast discloses every feature of the claimed invention except a mechanical rotation subsystem. Part or Karlsson or Grinberg discloses a mechanical rotation subsystem (Mast: 211-214 in Fig. 3, or 270, 300, 420 in Fig. 1; or Karlsson: 13-22 in Fig. 1, or Grinberg: col. 2 lines 53-62) which is arranged to rotate multi-layer structures in an azimuth plane. It would have

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been obvious to one having ordinary skill in the art to provide Mast's antenna apparatus with rotation system as taught by Park or Karlsson or Grinberg in order to achieves better beam efficiency as well as antenna's gains (Park: in abstract; Karlsson: col. 2 lines 53-61).

Respecting claim 53, Grinberg discloses, in Fig. 2 and col. 9 lines 1-5, antenna elements (12) are tilted with respect to a plane of a first multi-layer structure (14).

8. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mast in view of Pett et al (US 5,210,542).

Mast discloses every features of the claimed invention except the antenna elements disposed in respective recess. Pett discloses, in Figs. 1-3 and 6, antenna elements (18, 64) disposed in respective recess (16). It would have been obvious to one having ordinary skill in the art to employ Pett's teaching of antennas in the recess in order to increase bandwidth and recede coupling while maintaining low profile capabilities (Pett: abstract).

Inquiry

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821 and email address is trinh.dinh@uspto.gov. The examiner can normally be reached on IFW (Increase Flexible Work). The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens, can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 19, 2009

/Trinh Vo Dinh/

Primary Examiner, Art Unit 2821